

Awakening the Entrepreneurial Spirit: Exploring the Relationship Between Organizational Factors and Perceptions of Entrepreneurial Self-Efficacy and Desirability in a Corporate Setting

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While efforts at understanding how the entrepreneurial spirit is awakened (e.g., unwrapping the cognitive “black box”) have been productive in the new venture context, it remains largely unexplored in a corporate setting. This study extends previous research by investigating the relationship between organizational antecedents and perceptions of entrepreneurial self-efficacy and desirability of entrepreneurial activity. In a field study of organizations consistent with a corporate entrepreneurial archetype typology, we found that (1) individual work discretion and time availability impacted entrepreneurial self-efficacy, and (2) individual interest in work innovation influenced perceived desirability of innovative behaviors.

Interest in the concept of corporate entrepreneurship (CE) has grown over the past decade, at least in part, because increasing globalization and technological diffusion pressures are creating a need for *all* organizations to become flexible and learning oriented (Bettis and Hitt 1995). Given the upswing in such pressures and their presumed importance to both the ongoing performance and long-run survival of organizations, it comes as no surprise that researchers and top managers alike have begun to seek greater understanding of organizational factors involved in the genesis of corporate entrepreneurial activity. To wit, Damanpour (1991) reviewed the extant literature examining the association between organizational factors and successful corporate entrepreneurship and found empirical evidence for significant relationships between rewards and incentives, organizational structure, management support, resource availability, and successful corporate entrepreneurship (Kuratko, Montagno, and Hornsby 1990; Zahra 1991; Russell and Russell 1992; Hornsby et al. 1993; Hornsby, Kuratko, and Montagno 1999).

While studies examining organizational factors have certainly made significant contributions to CE theory, others have suggested that exclusive investigation of the interplay among such factors loses an important and “distinctly human” element of CE (Krueger 2003). For example, top-level managers in corporate settings can attempt to induce, or set the stage for, entrepreneurial activity by leveraging organiza-

tional resources that give rise to entrepreneurial environments or cultures. However, to awaken an entrepreneurial spirit that is more autonomous in nature for a potentially budding corporate entrepreneur (Burgelman 1983), presumably unused to creative thinking, it seems only intuitive that a change in the underlying mindset is required, or the belief that it is within one’s capability to act entrepreneurially (i.e., self-efficacy; Bandura 1986). For example, is it simply the availability of time to engage in projects of one’s own volition, the unbridled freedom of bureaucratic organizational boundaries, or some interaction among a myriad of both and/or organizational resources that ignites the proverbial entrepreneurial “fire in the belly” and impacts employees’ perceived capabilities for success in such pursuits?

The above suggests that at the heart of advancing our understanding of the CE mystique is understanding not only what organizational factors may be associated with the initiation of entrepreneurial activity, but also *why* entrepreneurs take calculated risks as they identify oft-times disguised or opportunities less than obvious to others (Campbell 1992; Shane and Venkataraman 2000). Accordingly, it suggests why CE researchers are calling for new research designed to “clarify the linkage between the presence of properties in an organizational context and middle-level managers’ *decisions* to act entrepreneurially” (Kuratko et al. 2005: 711). We concur with this conclusion and believe inroads may be laid by framing studies within the science of cognition and intentionality tied to the decision-making process. Specifically, few studies have focused directly on the relationship between organizational antecedents and the cognitive structure and dynamics that foster entrepreneurial activity in the corporate context (Shepherd and Krueger 2002).

This exploratory study seeks to take a first step toward extending previous theory and research by focusing explicitly on the role of organizational antecedents as they relate to CE potential to engage in entrepreneurial activities, particularly in cases where a track record for such activity does not historically exist. We directly examine how and if management support, autonomy, time availability, organizational boundaries, rewards, and interest in workplace innovation significantly impact two critical psychological states of the

potential CE: (1) entrepreneurial self-efficacy and (2) the desirability of engaging in entrepreneurial activities. Given the potential for entrepreneurial decisions to become recognized, at least anecdotally, as “watershed moments” for both an organization and a middle manager’s career, we were intrigued by the idea of exploring if any, and which, of the previously identified cultural components of CE might influence a middle manager’s self-efficacy and desirability to act entrepreneurially of their own volition.

Literature Review

It has been widely suggested that the combination of increasing technological advancement, diffusion, and economic exchange across international borders throughout the 1990s has resulted in the emergence of a new competitive landscape characterized broadly by increasing degrees of uncertainty, ambiguity and risk (e.g., Bettis and Hitt 1995; Friedman 2005). Key features of this new landscape include substantial and often frame-breaking change; competitive efforts based on a series of temporary, rather than sustainable competitive advantages for individual firms; the criticality of speed in making and implementing strategic decisions; shortened product life cycles; and new forms of competition among global competitors (Hitt et al. 2002). The combination of these features implies that while existing industry patterns of successful competition confront threats, they are also simultaneously filled with opportunities for organizations to prospect for new sources and form competitive advantages through innovative activity that substantially alters the nature of, or even creates new industries and markets (Miles and Snow 1986).

Based on observations of the increasing pace and speed of competitive change in the economic landscape, it has been argued that the need for corporations to become more entrepreneurial is increasingly pervasive (Pearce and Robinson 2005), if not essential in creating strategic renewal for large conservative firms (Wennekers and Thurik 1999). Given observations of massive corporate downsizing and restructuring throughout the 1980s and the corresponding arguments that individuals have often found it difficult to act entrepreneurially in bureaucratic corporate settings, it comes as no surprise that an increasingly fundamental question of interest to researchers and top managers alike focuses on how *opportunity-seeking activity* might be stimulated and fostered in such settings. Indeed, it is quite interesting that terms once frequently carrying negative connotations (e.g., innovation, change, and entrepreneurship) have now become highly regarded within the corporate setting (Zahra, Kuratko, and Jennings 1999).

With interest growing in CE, debate over what constitutes entrepreneurship in the corporate setting has been also intensified in the literature [see Sharma and Chrisman (1999)

for a detailed literature review]. Such debate has two important implications for research. First, it raises important theoretical questions as to whether, and if so, to what extent the attributes of behavior normally associated with individual entrepreneurs might be expected to permeate the enterprise as a whole (Stopford and Baden-Fuller 1994: 521). Second, it suggests that to clarify theoretical contributions and the otherwise mystical undertone associated with how corporate entrepreneurship is defined, researchers must consider how the process of identifying companies that successfully inspire employees to innovate and create new forms of value influences the design, interpretation, and implications of investigatory efforts.

Our review of the extant literature suggests that CE is seen by most organizational participants as a proactive (not reactive) set of behaviors engaged in to stimulate innovation(s) (Covin and Miles 1999). More specifically, CE is viewed as a matter of strategic choice (Ireland, Kuratko, and Covin 2003) and embraces two types of major organizational events: (1) new venture creation within the existing organization and (2) instigation of strategic renewal and innovation (Sharma and Chrisman 1999). For the purposes of this article, CE is defined as innovative efforts undertaken within organizations as the result of corporate strategy defined by the top management team (TMT). In CE, the organization provides support for the development and exploitation of a stream of incremental and radical innovations that are deemed strategically and financially consistent (by the TMT) with the strategic context of the company (Herbert and Brazeal 2004).

Early CE studies were consistent with Miller’s (1983) seminal work on strategic posturing. Miller attempted to establish a relationship between firm-level corporate entrepreneurial characteristics (e.g., level of risk taking, pro-activeness, and radical product innovation) and Mintzberg’s (1973; 1979) organizational typology, strategic modes, and structures. Miller’s seminal contribution on strategic posturing has served as a sound foundational precursor for what has become widely accepted as a firm’s entrepreneurial orientation (e.g., Covin and Slevin 1991; Lumpkin and Dess 2001). Although the notion of an overarching orientation was a key contribution of Miller’s work, it is also important to note that he concluded different organizations required “very different kinds of forces to stimulate entrepreneurship.” In short, he concluded that “[t]here seem to be very few panaceas for promoting entrepreneurial activity” (p.788-789).

More recent studies have extended our understanding of strategic posturing by focusing on identifying common characteristics of entrepreneurially oriented ventures. Lumpkin and Dess (1996) reviewed this extant stream of literature and concluded five commonalities appear to be closely associated with entrepreneurial posturing in ventures. Specifically, entrepreneurially oriented ventures demonstrate a commit-

ment to autonomy (i.e., the ability of an individual or team to independently develop and act on an idea or vision), innovativeness (a firm's propensity to engage in and support the development of novel ideas resulting in new products, services, or technological processes), risk taking (i.e., managerial tendency to act boldly to achieve firm objectives), proactiveness (a firm's tendency to anticipate and act on future needs before other firms), and competitive aggressiveness (a firm's propensity to directly and intensely challenge its competitors to outperform industry rivals). Interestingly, early empirical efforts (e.g., Covin and Slevin 1989; Lumpkin and Dess 2001) have generally supported a positive relationship between a venture's possession of an entrepreneurial orientation and venture performance. However, these studies have also suggested that such relationships may be somewhat more complex than originally considered, depending at least in part on other moderating influences such as a firm's organizational structure, industry, or environment.

Seeking to understand the potentially complex nature of this relationship, researchers have recently begun to consider the origins and nature of the development of entrepreneurial orientations in corporate ventures. Specifically, these studies have sought to identify relationships between various internal organizational antecedents and entrepreneurial activity. A review of this literature suggests that five major categories, or dimensions of organizational antecedents, are associated with entrepreneurial activity. These dimensions are: (1) management support, or the willingness of top-level managers to facilitate and promote entrepreneurial behavior; (2) work discretion/autonomy, or top management's willingness to delegate decision authority and responsibility, provide decision-making latitude to managers, and free them from excessive oversight; (3) time availability, or top management efforts to evaluate and adjust workloads to provide time needed for innovation; (4) organizational boundaries, or clear explanations from top management as to organizational outcome expectations, as well as the development of mechanisms for evaluating, selecting, and using innovations; and (5) use of rewards, or a reinforcement system based on performance where significant achievements are highlighted and the pursuit of challenging work is encouraged (Hornsby et al. 1993).

Collectively, this review of the CE literature suggests three important implications for research. First, this review suggests that as has been frequently presumed, the presence of an orientation toward entrepreneurial behavior has been positively related to the performance of corporate ventures. Second, it suggests that researchers have made progress not only in terms of understanding the dimensions that make up such a venture orientation, but also in identifying various organizational antecedents that may be responsible for the development of such an orientation. Lastly, however, this

review suggests that previous CE research has relied on common and important, yet unspecified and ill-tested underlying presumptions. Specifically, this work has presumed that individuals within the corporate setting will respond directly to top management's purposeful attempts to promote the strategic engagement in decision-making activities, processes, and practices that lead to creative and innovative outcomes. Stated somewhat differently, the interplay among such factors loses an important and "distinctly human" element (Krueger 2003) of CE process, that otherwise seems only intuitive to explaining the volitional nature of establishing a more widespread willingness to actively seek out entrepreneurial activity (Burgelman 1983). Consequently, our understanding of how various organizational antecedents impact the entrepreneurial "thinking" of individuals as they consider the potential for engaging in CE activity remains underdeveloped.

To illustrate the importance of this implication, consider the top management decision to invest in time availability to promote CE activity. *It does not necessarily follow* that providing available time alone for engaging in entrepreneurial activities will impact an individual's cognitive capability (actual or perceived) to act on a potentially marketable product, process, or technological opportunity within the confines of the organization. Rather, it is quite plausible that an individual will fail to develop the belief in his or her capability to perform other necessary activities (e.g., cross organizational boundaries and facilitate the development of key political relationships) no matter how much discretionary time they perceive. Jim Collins' research findings reinforce this point in his number one best-selling work entitled *Good to Great*. Specifically, his research suggests that it is critical for leaders first to "get the right people on the bus, the wrong people off the bus, and the right people in the right seats." He contends further that "the old adage 'people are your most important asset' turns out to be wrong. People are *not* your most important asset. The *right* people are" (p.13). Similarly, research on employment behavior suggests that individuals may choose self-select out of situations despite changes (i.e., increased time availability) presumably making them "more ripe" for entrepreneurial activity, when such situations are perceived as inconsistent with an individual's perceptions of self in some meaningful way (Schneider 1987).

Given the widespread theoretical contention that individuals intentionally choose to engage in entrepreneurial activity (Kirzner 1999; Casson 2003; Krueger 2003), particularly if mitigated by corporate structures or cultures (Covin and Slevin 1991; Kirzner 1999; Casson 2003; Krueger 2003), further research focusing on the relationship between organizational antecedents and the cognitive structure and dynamics that foster CE appears warranted (Shepherd and Krueger 2002). Such an examination is vital in informing deliberate

attempts to the potential corporate entrepreneurs. We now turn our attention toward developing a psychosocial model that seeks to inform the extant CE literature as to how a long-term strategic orientation may translate into entrepreneurial venturing in the corporate context. We directly examine how perceptions of management support, autonomy, time availability, organizational boundaries, rewards, and interest in workplace innovation influence the individual's cognitive infrastructure—that is, perceptions of entrepreneurial self-efficacy and the desirability of entrepreneurial tasks and activities.

A Psychosocial Model of Corporate Entrepreneurial Potential

Due to its inherent volitional component, entrepreneurship has been conceptualized as conscious, planned, and intentional behavior (Katz and Gartner 1988). Accordingly, constructing an intentions-based, decision-making model of the potential corporate entrepreneur is consistent with previous conceptualizations. In an effort to extend current theory, we draw on Ajzen and Fishbein's (1980) Theory of Planned Behavior (TPB) and Shapero's model of the entrepreneurial event (1975) to gain insight into the cognitive infrastructure of the potential entrepreneur in a corporate context. According to the TPB, Ajzen and Fishbein (1980) state that a person's intention to perform an action is a function of a person's beliefs toward performing the behavior and that person's perception of the social pressures of either performing or not performing the behavior. Shapero (1975) emphasizes entrepreneurship as a choice among alternative behaviors that wins out when the resulting behavior is perceived as credible, meaning both desirable (I am interested in and have a favorable attitude toward entrepreneurial behaviors) and feasible (I have the talent, skills, and resources necessary to bring the activity to fruition). Interestingly, empirical evidence from the study of 126 upper-division university students confronting career decisions suggests that perceived credibility, perceived desirability, and propensity to act explain well over half the variance in intentions toward entrepreneurship (Krueger 1993).

When considering the TPB in the corporate entrepreneurial context, three pivotal attitudes that affect intentions are understood through the inclusion of Shapero's (1975) construct of credibility. The TPB posits: (1) attitude toward the act, (2) social norms, and (3) perceived behavior control as predictors of behavioral intentions. Attitude toward the act and social norms both encircle perceived desirability while perceived social control subsumes feasibility. Given the central research question in this investigation, we are primarily interested in the degree to which employee perceptions are influenced by resource allocation decisions of top management pertaining to organizational strategy and structure.

Employee perceptions (i.e., the potential corporate entrepreneur's view of a complex outlay of alternative behaviors are, in part, learned; Fishbein and Ajzen 1975) through managerial actions and attitudes. Consequently, employees can be influenced by organizational antecedents that attend to the perceived feasibility and desirability of the entrepreneurial behaviors.

Figure 1 depicts our proposed psychosocial model of corporate entrepreneurial potential (PMCEP). Based on a comprehensive review of the CE literature, researchers have begun developing assessment instruments focusing on the identification of organizational dimensions significantly associated with successful entrepreneurial activity. Accordingly, we adopted the dimensions suggested in the Corporate Entrepreneurial Assessment Instrument (CEAI) for the purpose of developing the framework proposed in this investigation (Hornsby, Kuratko, and Zahra 2002). Our model extends previous work by focusing explicitly on psychological states that previous intentions-based research suggests are critical to the initiation of entrepreneurial activity (Krueger 1993). To avoid confusion with the CE vernacular, we point out that we are analyzing entrepreneurial self-efficacy to address the construct of feasibility in a corporate setting. Hence the hypotheses will be worded to reflect this distinction. Because it does not necessarily follow that the organizational antecedents

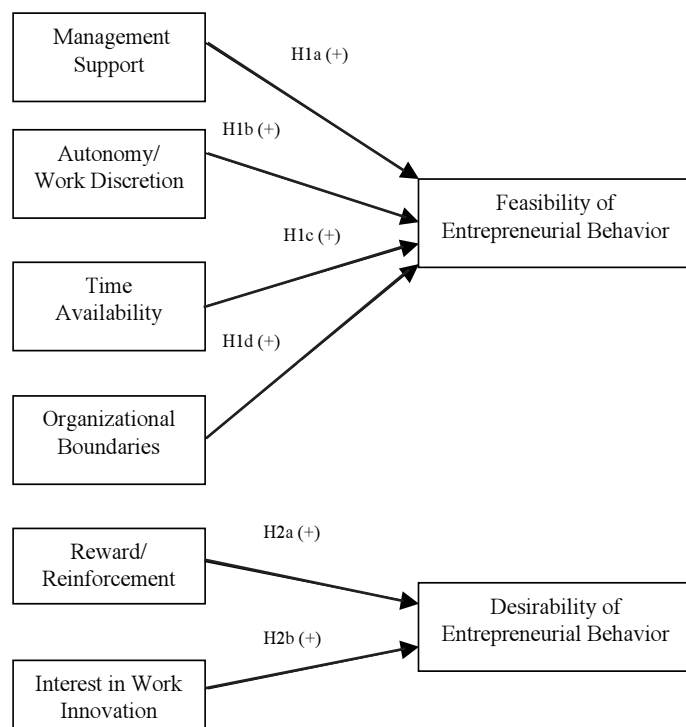


Figure 1. A Psychosocial Model of Corporate Entrepreneurial Potential (PMCEP)

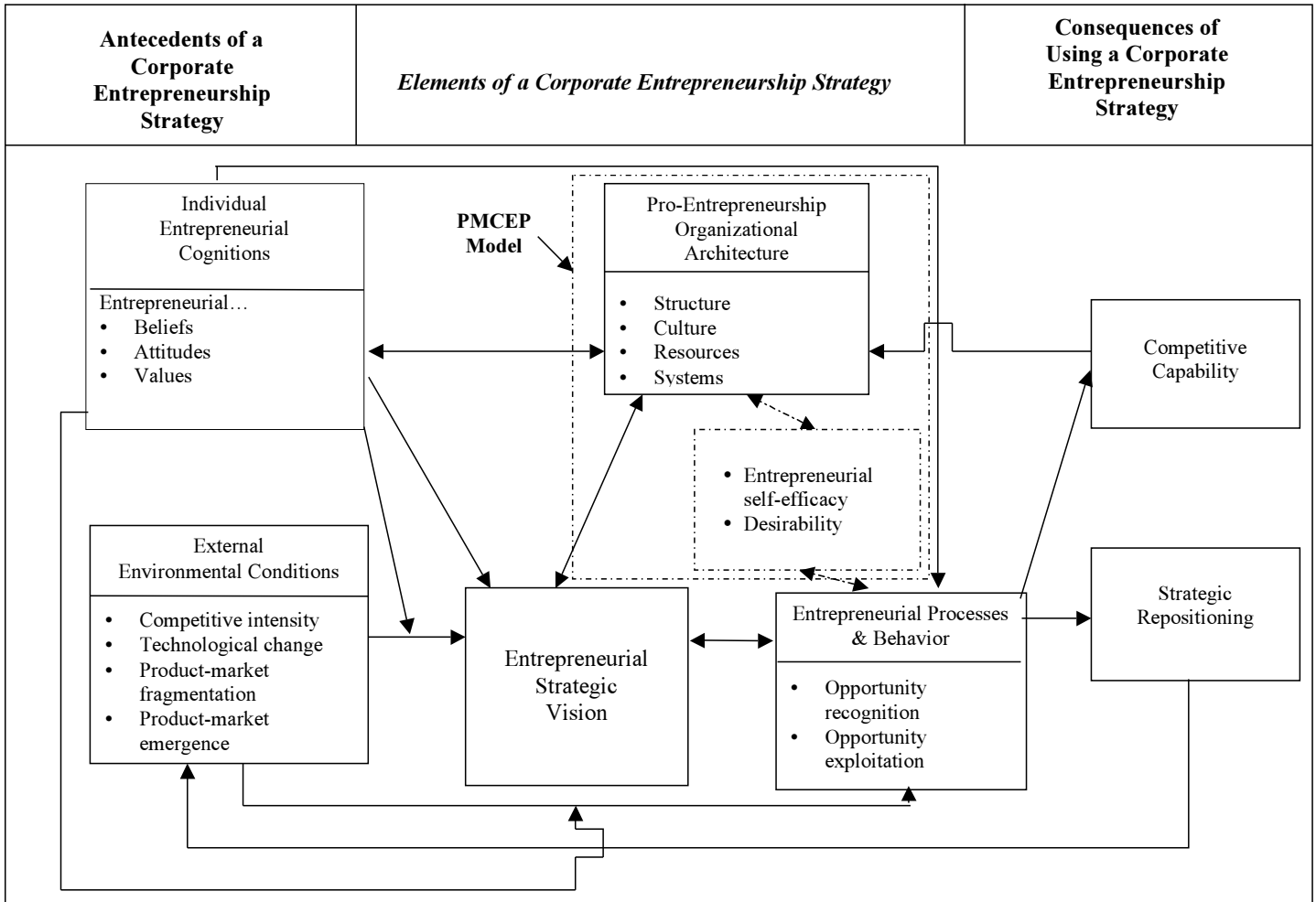


Figure 2. A Model of Corporate Entrepreneurship Strategy
(Ireland, Covin, and Kuratko 2005)

identified by the CEAI will impact an individual's cognitive capability as illustrated in the discussion above, adopting such a measure also avoids the existence of a logical tautology. As will be discussed further in the development of specific hypotheses below, we postulate that the management support, work discretion/autonomy, time availability, and organizational boundary dimensions will be related to entrepreneurial self-efficacy, and the reward/reinforcement dimension will be related to the desirability of engaging in entrepreneurial behavior. Drawing on additional work examining employee motivation and morale, we also considered interest in work innovation (Patchen 1965), postulating that it would be related to the desirability of engaging in entrepreneurial behavior.

Because our intent is to add critical cognitive, psychological relationships to models of CE strategy to enrich the development, execution, and subsequent success of CE programs, it is also important to note that our model is considered within the context of a broader, macro-based model of CE strate-

gy (see Figure 2). We adopted Ireland et al.'s (2005) CE strategy model as a backdrop for our CE potential model due to its emphasis on CE activity as endogenous to the firm's strategy and vision, and the understanding of CE as "organizationally reliant" on entrepreneurial behavior at multiple organizational levels. Ireland et al.'s model suggests that leader's individual entrepreneurial cognitions and external environmental conditions (competitive intensity, technological change) are the ignition for pursuing a CE strategy. The strategy itself is manifested in three elements: (1) an entrepreneurial strategic vision, (2) a pro-entrepreneurship organizational architecture, and (3) entrepreneurial processes and behaviors pursued corporate-wide. The critical consequences are increased competitive capacity and continuous strategic repositioning in response to dynamic external conditions.

Given the increasing interest in understanding how large, historically nonentrepreneurial companies may work to become more innovative and creative, our intent was to launch an exploratory study with a limited sample size in a

very specific kind of organization—Accidentally Innovative Organizations (AIOs)—as a foundation for more broad-based and generalizable studies. According to Herbert and Brazeal (1999), organizations can be categorized into four types: (1) the entrepreneurially challenged organizations—firms whose culture is not open to new ideas and risk-taking; (2) AIOs—firms that rely on chance rather than intent for improvement, modification, or innovative application to products or services; (3) entrepreneurially oriented organizations—firms that focus on incremental improvements of existing products; and (4) entrepreneurial organizations—firms that focus on both incremental and radical innovation. While the AIO firm does not necessarily seek to embed entrepreneurial tendencies into its culture, when it does stumble across an incremental or radical improvement opportunity, it is seized in an act of serendipity. Thus it does embrace some cultural elements that allow for innovation to occur. Stated somewhat differently, although the AIO firm may not actively shun innovative activities, management may put “too much faith on technical or technological skills as determining factors in market success” (p. 8). We are specifically interested in the relationship between pro-entrepreneurial architectures and the resulting entrepreneurial processes and behavior in AIOs.

Under the category of pro-entrepreneurial architectures, we are examining the role of the organizational elements as pliable ingredients top managers can manipulate to promote the enactment of entrepreneurial behaviors throughout the organization. We are further inserting entrepreneurial self-efficacy and the desirability of key cultural pro-entrepreneurship organizational architectures as psychological factors that constitute antecedent conditions of entrepreneurial processes and behavior. To rejuvenate the organization through opportunity recognition as Ireland et al. are suggesting, attention must be directed to the intentionality of entrepreneurial behaviors especially on the behalf of organizational participants that act as conduits for information processing, shepherding resources and creatively seeking innovation solutions. Accordingly, our model contributes to the literature and the process of model building by fine-tuning the human element of CE; how can organizational environments influence middle managers to act on opportunities with volition and intention?

In Pursuit of Entrepreneurial Behaviors

Prior to the 1990s, employees in the corporate context were not historically encouraged to behave entrepreneurially (Bettis and Hitt 1995). Instead, the bureaucratic nature of such environments left employees bound by tight supervision and rigid rules, leaving very little capacity for creative thought. By contrast, today, the hallmark of an effective corporate environment is presumed to be the ability of top man-

agers to successfully inspire, encourage, and nurture autonomous and creative entrepreneurial behaviors. This involves providing an environment that attends to the creative-minded individuals' need for autonomy, achievement, and a desire for personal control (Sexton and Bowman-Upton 1986). It also involves attending to organizational characteristics such as incentive systems for innovations and organizational structures dedicated to new product ideas, and managerial support in the form of product champions and resources in a strategically focused way (Sathe 1985; Hisrich and Peters 1986; Kuratko, Montagno, and Hornsby 1990; Covin and Slevin 1991). Such an environment encourages accepted and expected entrepreneurial responses to environmental challenges (Russell and Russell 1992). Hence, we posit the importance of top management intervention and construction of intentional organizational antecedents that inspire, as well as encourage an entrepreneurial mindset throughout the entire firm. We now turn our attention toward investigating how organizational antecedents might act to inspire or awaken the entrepreneurial spirit in corporate participants.

Entrepreneurial Self-Efficacy: the Feasibility of Corporate Entrepreneurship

As we have previously discussed, the perceived *possibility* of a particular course of action, overlaps to a large extent with Bandura's (1986) notion of self-efficacy. Consequently, the concept of self-efficacy offers the potential to offer insight into the cognitive “black box” associated with entrepreneurial activity. Self-efficacy has been postulated to reflect an individual's cognitive estimate of possessing the capability to self-motivate, garner resources, and exercise autonomy over desired outcomes (Wood and Bandura 1989). Individuals high in self-efficacy have been observed to exhibit a strong belief in their capabilities, choose challenging goals, invest significant time in carefully selected activities, and persevere in the face of insurmountable obstacles (Bandura 2000). Similarly, empirical investigations have shown self-efficacy to be a reliable cognitive mechanism that distinguishes patent inventors who started businesses from those inventors who did not start businesses (Markman, Balkin, and Baron 2002). Given both the theoretical and empirical evidence, we argue that the perception of a “can do” attitude should be expected to be a crucial linking pin to entrepreneurial behaviors in that it is likely to affect how they respond to their respective organizational environments.

Covin and Slevin (1991) have argued that top managers must create an organizational context that supports entrepreneurial behavior through structure, culture, resources, and competencies. Similarly, the TPB and self-efficacy theory would suggest that in any organizational setting, the feasibility of entrepreneurial behavior should reflect the extent to

which employees believe they have, in their control, blueprints for innovative pursuits, sanctioning by immediate supervisors, the ability to formulate tenable expectations about market potential (Casson 2003), and the ability to persuade others that efforts to develop such potential is viable (Ardichvili, Cardozo, and Ray 2003). For example, theorists have argued that managers help employees “make sense” of their actions by helping them to identify and understand influential variables and the causal relationships between them that make up the causal maps they develop and maintain (Weick 1979). Similarly, others have argued that strategic behavior on the part of individuals can be fostered by managers demonstrating the willingness to facilitate entrepreneurial projects (e.g., Quinn 1985), and encouraging autonomous risk taking and not punishing any subsequent failures that result (e.g., Hisrich and Peters 1986). Theorists have also argued that employees must perceive the availability of key resources such as time prior to pursuing innovative activity (e.g., Sathé 1985; Hisrich and Peters 1986), as well as internal structure that is perceived to promote or at least fail to inhibit the communication of innovative activity across organizational boundaries (e.g., Schuler 1986). Because middle managers play an important role as interpreters and disseminators of key strategic information throughout the organization, their perception of the credibility of top manager’s efforts to make the resource commitments necessary to foster entrepreneurial activity throughout the organization is critical, *particularly when such efforts are historically lacking*. Stated more formally:

Hypothesis 1a: Perceived management support will be positively related to entrepreneurial self-efficacy for middle managers in the context of AIOs.

Hypothesis 1b: Perceived autonomy/work discretion will be positively related to entrepreneurial self-efficacy for middle managers in the context of AIOs.

Hypothesis 1c: Perceived time availability will be positively related to entrepreneurial self efficacy for middle managers in the context of AIOs.

Hypothesis 1d: The perception of flexible organizational boundaries will be positively related to entrepreneurial self-efficacy for middle managers in the context of AIOs.

The Desirability of Corporate Entrepreneurship

The construct of perceived desirability embraces both organizational social norms and individual (employee) attitude toward the act as designated by the TPB. Social norms include

a common understanding of the organization’s reward system. An employee’s desire to actively seek out and pursue opportunities is often the result of a complex balancing of risk and reward in the context of the organization’s reward system (Stevenson and Jarrillo 1990). Presumably, the risk of leaving one’s current position in the organization to pursue new roles, even within the confines of an established organization, signifies rewards should be commensurate with the relative immediate and career hazards such behaviors may create.

Organizational leaders may orient themselves to meeting the needs of creative individuals by fostering an entrepreneurial environment where managers are not only provided with operational autonomy toward achieving innovation goals, but also rewarded accordingly for engaging in such behavior (Amabile 1997). For example, it has been argued that for employees to be encouraged to think “outside of the box,” managers must design and employ desirable reward systems from an employee perspective. Such systems may include extrinsic rewards such as cash bonuses, stock options, accelerated promotions and salaries, as well as intrinsic rewards, or those that are nonfinancial in nature, such as public praise and recognition (Block and Ornati 1987). Others have suggested that structuring wholly self-contained new ventures nestled within bureaucratic layers requires a reward system that includes equity in the new venture with unlimited boundaries for financial gain (Souder 1981; Kanter 1985). In sum, the literature suggests creative ways of behaving are not likely to surface, even when they are deemed feasible, unless personal rewards are perceived as more desirable than old, familiar behavioral patterns (Ford and Gioia 1995).

Hypothesis 2a: Perceived organizational rewards will be positively related to the desirability of entrepreneurial behavior for middle managers in the context of AIOs.

In addition to creating a reward system that promotes entrepreneurial thinking, it would be expected that the desirability of engaging in entrepreneurial activity will depend at least in part on the nature of the activity in the broader innovation process. Organizational members are likely to find value in entrepreneurial behaviors to the degree that they are interested in innovation (Russell and Russell 1992). They identify and become interested in the organization through its mission and vision statements, the degree of challenge presented in the work and the degree to which the work environment is stimulating (Dess and Lumpkin 2003). Patchen (1965) termed this “interest in work innovation.” Therefore, we expect that where a high interest in innovation exists, a high desirability for engaging in entrepreneurial behavior is also likely to exist.

Interestingly, although such a relationship may appear intuitive at first blush, there is reason to believe that the relationship may not be as straight forward as it initially appears. For example, attraction-selection-attrition theory would suggest that entrepreneurial types may avoid, or self-select out of firms over time that do not seem to support entrepreneurial endeavors. Therefore, it is alternatively possible that very little relationship will be found between these factors because individuals with an interest in workplace innovation will have opted to self-select out of the AIOs comprising the sample in this investigation. However, given that career “locked in” effects tend to increase as individuals progress up the organizational hierarchy, we would expect that there would be some significant latent interest for entrepreneurial activity on the part of middle managers based on their personal interests, regardless of the historical nature of the respective CE strategic context in which they operate.

Hypothesis 2b: Interest in work innovation will be positively related to the desirability of entrepreneurial behavior for middle managers in the context of AIOs.

Methods and Limitations

Sample Selection and Data Collection

Drawing on Herbert and Brazeal's typology of the entrepreneurial (or lack thereof) nature of organizations, we identified three large (i.e., all companies had multibillion dollar revenues) companies in the utility, heavy equipment, and financial industries that were initially believed to reflect the AIO categorization. In-depth interviews were conducted with managers in these companies to ensure that each met the criteria for the aforementioned definition of an AIO. Preliminary interviews and organizational assessments by the authors led to the following specific observations that the organizations composing our sample were indeed in accordance with the AIO archetype:

1. While managers at various levels were not in denial of the need for innovation (Entrepreneurially Challenged Organization), no policies or processes, however minor, were explicitly identified to be in existence that encouraged innovation. Similarly, managers of these firms indicated that explicit strategic intentions and initiatives, CE, or corporate venturing programs exhorting serious commitments to innovation were absent (Entrepreneurially Oriented Organization or Entrepreneurial Organization).
2. The potential for innovation did exist within each firm. Specifically, there was some talk of successful innovations, but no systems or programs had been firmly entrenched in the organizational environment at the time of the interviews. In essence, they seemed to “happen by chance.”

While the serendipitous nature of such entrepreneurial acts may ultimately lead to the “emergence” (Mintzberg 1973) of a CE strategy, it has been argued that a more ideal approach to developing an effective CE strategy for organizations operating in a tumultuous climate characterized by rapid change is one that is premeditated and consciously enacted entrepreneurial organizational environment (Burgelman 1983).

In keeping with the individual as the primary unit of analysis in our research question and exploratory study, data were obtained by distributing our Orientation to Innovation Survey (OTIS)¹ to middle managers of each organization. While organizational participants at all levels certainly play important roles in CE activities, Kuratko et al. (2005) have argued the role of the middle-level manager might be most vital for the execution and implementation of a CE strategy. Moreover, their model highlights the importance of individual *perceptions* of organizational culture by middle managers as critical toward influencing entrepreneurial behavior in that middle-level managers are the conduit between the strategic directions set by the TMT and operating-level managers and employees. They are often the champions of innovative programs and innovations, and, most certainly are the gatekeepers, disseminators, and synthesizers of information. This suggests that although the TMT may set strategy and procedure, middle managers may effectively impact each by how and to what extent they choose to carry it out. Consequently, as middle managers are referred to as the “harbingers of change” of organizations seeking to infuse their systems with vision and creativity through influential decisions, focusing on these individuals as a primary level of analysis in the present investigation appears warranted.

To select a sample of middle managers that represented prospective conduits for innovation, top managers in the selected companies were asked to identify middle management positions where there was the potential for, and/or evidence of, innovation. Examples of the middle manager positions identified under this criteria included the following: Architectural Designer, Applications Developer, Project Manager, Engineering Team Leader, and Investment Officer. During the data collection process, we confirmed with the participants that their organizational positions did indeed encompass ample room for innovation, creativity, and entrepreneurial activities.

The industry and sample selection processes, while thoughtful, do introduce the potential for bias in at least two important forms. First, there is no doubt that in one sense the sample selection procedure adopted has the potential to inject a form of sample selection “bias,” which potentially threatens external validity of the present results at some level. Thus, we cannot say with certainty that the results observed in this study are necessarily generalizable to *all*

organizations meeting the aforementioned AIO criteria or that they might extend to other industry settings. Second, using the perceptions of top managers as a guide for identifying middle management positions with entrepreneurial potential arguably introduces bias as well. In particular, it is conceivable that there are alternative middle management positions and individuals who actively practice innovation unbeknown to, and not formally sanctioned by, top management. However, we were concerned with the notion that some middle-management positions have little, if any history of readily lending themselves to innovative activities. To confirm the accuracy of top management's perceptions, preliminary interviews with the study participants were conducted. In all cases, they confirmed a lack of *consistent* innovation history, yet potential for entrepreneurial activities associated with their respective middle-management positions.

We believe, however, that such sample selection methods serve as an important means of extending current extant theory. In particular, given previous theory on employment behavior associated with attraction-selection-attrition (Schneider 1987), AIOs might be expected to consist disproportionately of individuals who are not naturally inclined to engage in entrepreneurial activity. Moreover, AIOs, by definition, are at early stages of managerial attempts to bring about cultural changes to inspire widespread entrepreneurial behaviors and thus are not likely to have preexisting cultures where entrepreneurial expectations are characterized as such. Therefore, should the proposed associations be found, our exploratory findings would serve as an important empirical foundation from which future research can assess further the generalizability of the present theoretical arguments to other contexts where substantive efforts are being put forth to enhance the strategic CE potential of the organization.

In sum, we believe the present sample represents a strength for extending the current understanding of CE precisely because of the limited and conservative nature of the sample selection procedure. Specifically, this procedure offers the potential to isolate the impact and establish the relative importance of previously identified organizational antecedents during the initial stages of the entrepreneurial decision formation process, while simultaneously controlling for potential alternative explanations (e.g., industry differences, cultural differences, etc.). Hence, this research contributes to the CE literature because, prior to this study, organizational antecedents of CE activity have failed to consider different types (i.e., archetypes) of organizations along the previously discussed CE continuum. Stated differently, they have not addressed the very plausible notion that different organizational factors might take on varying levels of importance in organizations that are "awakening the entrepreneurial spirit" in contrast to those that already have processes and procedures in place to actively support entrepreneurial activ-

ities. Thus, we believe the trade-off of this methodological approach possesses inherent merit and makes an important contribution to the extant CE literature given both the nascency of CE theoretical development and the central focus of the research question in this study.

Measures

Independent Variables

The independent variables included measures from the Corporate Entrepreneurship Assessment Instrument² (CEAI; Hornsby, Kuratko, and Zahra 2002) and Interest in Work Innovation Scale (IWIS)³ (Patchen 1965). The CEAI was developed explicitly to measure organizational factors proposed to foster corporate entrepreneurial activity in previous research. Similarly, the IWIS scale was developed to measure innovation in general, and the propensity to engage in new work methods. Negatively worded items were included to offset potential response tendencies, but reverse scored during analyses to facilitate a more direct interpretation of results.

Each of the five-point Likert-type scales, with responses ranging from "strongly disagree" to "strongly agree," has been found to have high reliability in previous studies (e.g., Hornsby, Kuratko, and Bishop 2005). We used exploratory factor analysis to refine the individual measures employed in this study. Specifically, we used principle components analysis with varimax rotation to reduce the initial list of items. Items that loaded marginally on any one factor, or cross-loaded significantly on multiple factors were deleted. As a result, top management support was measured by three items ($\alpha=.83$); work discretion was measured by three items ($\alpha=.88$); time availability was measured by three items ($\alpha=.77$); organizational boundaries was measured by three items ($\alpha=.74$); rewards/reinforcement was measured by three items ($\alpha=.61$); and interest in workplace innovation ($\alpha=.81$). These reliabilities are consistent with those observed by Kuratko, Montagno, and Hornsby (1990), and the factor solution explained a total of 78.87 percent of the variation among the items, both of which support the use of the truncated version of the CEAI scale employed in this study. Table 1 summarizes the measurement items for variable.

Dependent Variables

The entrepreneurial self-efficacy measure behavior was measured using a seven-item scale based on the work of Judge et al. (2005). This measure was amended for this study to address self-efficacy with respect to novel and challenging entrepreneurial activities. The Chronbach's alpha for this measure was .76.

The perceived desirability of entrepreneurial behavior was measured using a four-item, seven-point Likert-type scale with responses from "strongly agree" to "strongly disagree."

Table 1. Measurement Items for Variable

<i>Variable</i>	<i>Question Text</i>
Management Support 1 (strongly disagree)– 5 (strongly agree)	<ol style="list-style-type: none"> 1. My organization is quick to use improved work methods. 2. My organization is quick to use improved work methods that are developed by workers. 3. Many top managers have been known for their experience with the innovation process.
Work Discretion 1 (strongly disagree)– 5 (strongly agree)	<ol style="list-style-type: none"> 1. I have the freedom to decide what I do on my job. 2. It is basically my own responsibility to decide how my job gets done. 3. I almost always get to decide what I do on my job.
Time Availability 1 (strongly disagree)– 5 (strongly agree)	<ol style="list-style-type: none"> 1. During the past three months, my workload kept me from spending time on developing new ideas. 2. My job is structured so that I have very little to think about wider organizational problems. 3. I feel that I am always working with time constraints on my job.
Organizational Boundaries 1 (strongly disagree)– 5 (strongly agree)	<ol style="list-style-type: none"> 1. During the past year, my immediate supervisor discussed my work performance with me frequently. 2. My job description clearly specifies that standards of performance on which my job is evaluated. 3. I clearly know what level of work performance is expected from me in terms of amount, quality and timelines of output.
Reward/Reinforcement 1 (strongly disagree)– 5 (strongly agree)	<ol style="list-style-type: none"> 1. My manager helps me get my work done by removing obstacles and roadblocks. 2. My manager would tell his/her boss if my work was outstanding. 3. There is a lot of challenge in my job.
Interest in Work Innovation	<ol style="list-style-type: none"> 1. How often do you get chances to try out your own ideas on the job, either before or after checking with your supervisor? <ol style="list-style-type: none"> a. Several times a week or more b. About once a week c. Several times a month d. About once a month e. Less than once a month 2. How many times in the past year have you suggested to your supervisor a different or better way of doing something on the job? <ol style="list-style-type: none"> a. Never had occasion to do this during the past year b. Once or twice c. About five times d. Six to 10 times e. More than 10 times 3. How many times in the past year have your suggestions to your supervisor for a different or better way of doing something on the job been acted upon? <ol style="list-style-type: none"> a. Never had occasion to do this during the past year b. Once or twice c. About five times d. Six to 10 times e. More than 10 times

This measure was created for this study based on evidence from previous research (e.g., Block and Ornati 1987) and yielded a Chronbach's alpha of .87.

Analyses and Results

Table 2 presents the descriptive statistics and the correlations among the variables in our study. Perceived feasibility was significantly and positively related to work discretion ($r = .337, p < .05$) and time availability ($r = .292, p < .05$). The univariate analyses reported in Table 2 also show that individuals reporting interest in work innovation tended to report high desirability scores ($r = .642, p < .01$).

Are organizational antecedents related to perceptions of the feasibility of engaging in entrepreneurial behavior? To address this question, we employed multiple regressions to test hypotheses 1a through 1d. Multiple regression results presented in Table 3 show that the answer to this question is affirmative. As shown in Model 1, work discretion ($\beta = .35, p < .01$) and time availability ($\beta = .20, p < .10$) were significantly and positively related to the perceived feasibility of engaging in entrepreneurial behavior, explaining 14 percent of the variation observed (i.e., R^2). A p-value of .10 was selected as our level of significance for two reasons: (1) we were sensitive to reducing the possibility of a Type II error in a field study where the variables are complex and interrelated and (2) our sample size is small, decreasing the likelihood of teasing out statistically significant *and* theoretically meaningful results. Sauley and Bedeian (1989) argue that the aptness of a specific level of significance should be based on considerations such as sample size (p. 339). By contrast, neither man-

agement support nor organizational boundaries were related to perceived feasibility. Consequently, our results suggest support for hypotheses 1b and 1c, but no support for hypotheses 1a or 1d in the present population tested.

Are rewards or interest in innovation related to perceptions of the desirability of engaging in entrepreneurial behavior? To address this question, we again turn to multiple regression results presented in Table 3. The results of Model 2 show that the answer to this question is again affirmative. Specifically, interest in work innovation ($\beta = .65, p < .01$) was significantly and positively related to the perceived desirability of engaging in entrepreneurial behavior, explaining 39 percent of the variation observed (i.e., R^2). By contrast, the use of organizational rewards was unrelated to perceived desirability. Consequently, our results offer no support for hypothesis 2a, but strong support for hypothesis 2b.

Discussions and Implications

Past work has shown that various organizational antecedents may be related to the level of entrepreneurial activity in the corporate environment, but the theoretical rationale for the relationship has remained less than fully explored. This work has presumed that individuals within the corporate setting will respond directly to management's purposeful attempts to promote the strategic engagement in entrepreneurial decision-making activities, processes and practices, yet little research has directly considered how these potential influences relate to the cognitive structure and psychological processes underlying such activity. In this exploratory study, we sought to take a step toward extending previous theory

Table 2. Descriptive Statistics and Correlations

	<i>Mean</i>	<i>s.d.</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>
1. Feasibility	5.98	.67	-						
2. Desirability	5.54	1.14	.191						
3. Management Support	2.76	.98	-.183	.225					
4. Work Discretion	3.20	1.06	.337 ^b	.109	.191				
5. Time Availability	2.82	.99	.292 ^b	.123	-.239 ^a	.160			
6. Organizational Boundaries	3.33	.86	-.004	-.152	.271 ^a	.189	-.036		
7. Rewards/Reinforcement	3.42	.79	.163	.169	.339 ^b	.446 ^c	-.075	.440 ^c	
8. Interest in Work Innovation	2.50	1.00	.216	.642 ^c	.356 ^b	.476 ^c	.171	.124	.294 ^b

a. $p < .10$

b. $p < .05$

c. $p < .01$

and research by focusing explicitly on how top managers may leverage or prioritize current organizational resources and support mechanisms to awaken the entrepreneurial spirit in a corporate setting. Specifically, we explicitly examined how perceptions of management support, autonomy, time availability, organizational boundaries, rewards, and interest in workplace innovation are related to entrepreneurial self-efficacy and the likelihood that entrepreneurial activity will be perceived as desirable by corporate organizational participants.

Due to its inherent volitional component, entrepreneurship has been conceptualized as consciously, planned, and intentional behavior (Katz and Gartner 1988). Accordingly, from a theoretical perspective the current study makes an important contribution toward extending the current understanding of which organizational factors can prompt middle managers in historically nonentrepreneurial companies toward engaging in such activity. Our results suggest that in the organizations we tested (i.e., “accidentally innovative”; Herbert and Brazeal 1999), providing individuals with discretion over their work and time are important to inducing entrepreneurial self-efficacy; that is, beliefs in one’s capabilities

to undertake entrepreneurial activities. Similarly, identifying those individuals who have an interest in work innovation is important to understanding which individuals are likely to perceive engaging in entrepreneurial behavior as desirable. Consistent with our underlying premise, the results of this exploratory investigation suggest that understanding more precisely how cognition operates to impact the intentional decision to engage in corporate entrepreneurial activity is important to extending existing theory, and ultimately to providing prescriptive guidance to practitioners. For example, future research might consider if work discretion is simply important to self-efficacy, or perceived capabilities to engage in innovative or entrepreneurial activity, or because it combines with other aspects of decision-making that jointly produce such activity.

Interestingly, and in contrast to previous studies (e.g., Hornsby, Kuratko, and Bishop 2005) and our hypotheses, the present results suggest that perceptions of management support and rewards increasingly argued to encourage entrepreneurial activity in such organizations demonstrated no significant relationship to either entrepreneurial self-efficacy or desirability of engaging in such activity. We speculate that

Table 3. Results of Regression Analysis for Feasibility and Desirability^a

<i>Variable</i>	<i>Model 1: Feasibility</i>	<i>Model 2: Desirability</i>
Management Support	-.20	
Work Discretion	.35 ^d	
Time Availability	.19 ^b	
Organizational Boundaries	-.01	
Rewards/Reinforcement		-.02
Interest in Work Innovation		.65 ^e
F	2.91 ^c	16.16 ^c
Adjusted R ²	.14	.39

n = 60; Values in table are standardized regression coefficients.

a. Following Stevens (2000), we examined the *variance inflation factors* (VIF) to assess whether there is a strong linear association between each predictor and all remaining predictors (i.e., to evaluate the potential for multicollinearity effects). The results of this examination strongly suggest that the regression results do not reflect any bias due to multicollinearity.

b. $p < .10$

c. $p < .05$

d. $p < .01$

e. $p < .001$

there are three possibilities for such a finding. First, it is possible that such factors are simply ineffective in organizations that are characterized as accidentally innovative because such factors simply lack credibility in the eyes of middle managers. For example, it is possible that middle managers remain somewhat skeptical of top management attempts to support entrepreneurial behavior directly in AIOs, whereas in other types of organizations such efforts could be perceived as more genuinely intentioned. Second, and given both employment theory on attraction-selection-attrition and the age of the organizations in our sample, it is also possible that the makeup of middle management in the sample reflects some sort of systematic source of bias with respect to the theoretical relationships proposed here. For example, it remains possible that the makeup of middle management that would normally be likely respond to such factors have simply elected to move on to organizations at other points on the organizational entrepreneurial continuum. In short, it remains possible that our sample contains some as yet unspecified source of bias that is important for future research to consider.

However, given previous process-oriented research focusing on the relationship between strategic management and CE (e.g., Burgelman 1983), we speculate that the present findings may suggest a third important possibility. Specifically, it is possible that the present findings suggest that a greater degree of complexity may exist with respect to the nature of organizational influences on the entrepreneurial process, than presumed in previous CE research. For example, it may be that there are important, yet unspecified to date, contingencies that govern the relationships proposed in this and previous research. Time availability, for instance, may be very important in the early stages of top management's attempt to encourage, or "sow the seeds" of an effective entrepreneurial CE strategy, whereas management support and extrinsic rewards might combine with, or even replace such a factor once such a strategy has "garnered traction among the ranks." It is also possible that some minimum combination of factors may be necessary for individuals to cross the critical threshold for believing in their own capabilities to the extent that they seek out entrepreneurial activity, or to attract those that would otherwise maintain both the desire and belief in their capability for doing so. Consequently, our results suggest some interesting avenues for future research and theoretical development. Specifically, they suggest the need for researchers to investigate the potential for relative differences in factors across strategic CE contexts, the potential for important combinations among organizational factors, and the potential for variations of factors and factor combinations over time.

We also found that possessing an interest in work innovation is strongly related to perceived desirability of engaging

in entrepreneurial behaviors. This finding fits neatly into theory on the entrepreneurial mindset whereby entrepreneurs are often motivated by the intrinsic internal value of starting their own business rather than for the potential for large financial gains. In fact, money or financial rewards is a crude measuring stick for success for the entrepreneur rather than an end in itself (Timmons and Spinelli 2004). Many entrepreneurs are driven by achievement motivation (Shaver and Scott 1991) as opposed to financial rewards, which are a natural byproduct of success (Scarborough and Zimmerer 2003). Thus intrinsic rewards seem to be critical to the entrepreneurial mindset. Additionally, creativity, innovation, and entrepreneurship appear to largely be self-motivational in nature, meaning entrepreneurs tend to pursue idea generation and exploitation because they have a desire for it. Thus it is intrinsically motivating and enriching to one's professional life and career goals.

This latter result suggests that it is almost as if the entrepreneur has no choice in one sense. Sir Edmund Hillary climbed Mount Everest because "it is there," or because he essentially had no choice in his desire for conquering the mountain. Entrepreneurs want to pursue the idea because it is a burning motivation in their consciousness and psyche. Although outside the scope of our statistical analysis capability in this study, we speculate that work discretion and interest in work innovation might work synergistically, in that identifying interested parties (i.e., "budding entrepreneurs") and giving them autonomy to pursue independent projects tied to strategic objectives might be a common underlying basis for corporate artistry and innovation. This observation may be a particularly compelling argument for our sample of AIOs as, by definition, they are poised at the very early stages of enacting cultural changes to inspire entrepreneurial behaviors.

By its very nature, the field of corporate entrepreneurship is a pragmatic field of inquiry. Our results have several practical implications for managers seeking to make their organizations more entrepreneurial. First and foremost, our results suggest that managers in organizations that do not historically have, but want to have employees more widely, willingly, and autonomously engaged in entrepreneurial activity should focus their efforts first on freeing existing employees from inhibiting perceptions of institutional constraints. For example, managers in organization's characterized by low levels of existing entrepreneurial activity should publicly acknowledge and emphasize their intent to shift the culture of the venture toward creating a climate where more entrepreneurial activity is perceived as feasible, or emphasizing a "can do" attitude toward innovative activities. To reinforce this commitment, they should then focus explicitly on enabling such activity by providing some correspondingly appropriate amount of "free" time for employees to choose to engage in such activity. Alternatively, our results suggest that

top managers might consider giving self-selected entrepreneurial employees the reins, loosely held but still attached to corporate visions and goals. In other words, let potential entrepreneurs “dare to dream,” either on their own or through organizational structures (e.g., skunkworks) that have been shown to facilitating such activity (Peters and Waterman 1982).

The second significant finding is that an interest in work innovation, rather than in interest in purely financial rewards, is related to the perceived desirability of innovative behaviors in accidentally innovative organizations. This finding suggests that relying solely or predominantly on extrinsic rewards to entice dormant entrepreneurs may not always be effective. By implication, managers may seek to employ programs that encourage self-motivated employees to choose novel activities and construct autonomous role sets. Managers might also seek to explore such interests as part of the candidate search process. In doing so, managers should help direct potential entrepreneurs natural inclinations toward a more appropriate fit of the company’s overall strategic goals. Though it is the case that entrepreneurs such as Bill

Gates or Richard Branson would probably not be found within the middle ranks of the organizational hierarchy in corporate America, entrepreneurially oriented individuals might. In a study of “entrepreneurial potential,” it was found that the majority of individuals in the companies surveyed demonstrated a strong interest in work innovation (Krueger and Brazeal 1994).

Conclusion

As researchers, we celebrate the potential of cognitive theory to extend insight into important dimensions of the entrepreneurial decision-making process within the corporate context. It offers us hope and direction for moving beyond Pavlovian thinking and unsubstantiated presumptions of previous work hoping to enlighten and inspire managers in their quest to foster entrepreneurial behavior as they seek to create value in their respective organizations. We contend that the first step in such efforts is to recognize, and indeed embrace, the volitional element of organizational member thinking as action plans for making the organization more entrepreneurial are formulated.

Endnotes

1. OTIS consists of Likert-like measures validated in previous studies, as well as measures created specifically for this study. Dimensions and statistical characteristics of this scale are discussed in greater detail in the Measures section.
2. The CEAI scale was developed as a measure of the perceived environment as it relates to fostering entrepreneurship. It assesses the respondent’s perception of five specific factors found to characterize an innovative environment. The five dimensions, and their corresponding Chronbach’s alpha reliability statistics are management support (.89), work discretion (.80), rewards/reinforcement (.65), time availability (.92), and organizational boundaries (.58).
3. Patchen’s (1965) Interest in Work Innovation scale is a long-established scale with good demonstrated reliability and validity (Utsch, Rauch, Rothfufs, and Frese 1999). Consistent with numerous studies, this measure demonstrated more than adequate reliability (Chronbach, s alpha = .81) as suggested by psychometric theory (Nunnally 1978).

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